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ABSTRACT

Using enrollment decline cases for data, the case survey method analyzes the content of case studies, thus allowing data from various cases to be aggregated and researchers to overcome constraints on data collection. The analyst uses six steps in this method in reviewing the case literature: (1) definition of the unit of analysis, (2) identification of case search strategy and case sources, (3) actual case search and selection, (4) checklist development, (5) checklist application to the cases, and (6) data analysis and interpretation. For enrollment decline, the unit of analysis chosen was that of case literature written between 1971 and 1980; the identification of case studies involved 10 sources, including journals, dissertations, and research suggested by scholarly organizations. Seventy representative cases were chosen and a checklist of 227 variables was prepared for application to the cases. Conventional statistical techniques were then used to determine the relationships between variables of interest to the researchers, including questions about the relationship of enrollment decline and school closings and the impact of declines on per-pupil costs. Although refinement is needed to ensure validity, adequate data, representative samples, and consistent application of checklists, the case survey method can successfully integrate fragmentary case studies and combine qualitative and quantitative methods of research. (JW)

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STUDYING ENROLLMENT DECLINE (AND OTHER TIMELY ISSUES) VIA THE CASE SURVEY*

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Major Products Emanating from
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This paper is one of several products emanating from the research titled Organizational Responses to Decline. The complete list (to date) is as follows:

1. Berger, M. Two paradoxes in managing decline: Comprehensive planning and participation. In Kae H. Chung (ed.). The 1982 Academy of Management Proceedings. Loveland, Colorado: Lithographic Press, 1982, 334-338.

   This paper was also awarded the "1982 Best Paper in the Public Sector Division" of the Academy of Management at its 1982 Annual Meeting in New York, August, 1982.

2. Berger, M. Class size is not the issue. Paper presented at the National School Board Association Annual Meeting, Atlanta, April, 1982.

3. Berger, M. Organizational Responses to Decline: Summary Report. Submitted to the National Institute of Education, December, 1982.

4. Berger, M. Managing enrollment decline: Current knowledge and future applications. Peabody Journal of Education, 1983, (Forthcoming).*

5. Berger, M. Neighborhood schools: The new (?) legal response to enrollment decline and desegregation. Urban Education, 1983, (Forthcoming).**

6. Berger, M. Retrenchment policies and their organizational consequences. Peabody Journal of Education, 1983, (Forthcoming).*

7. Berger, M. Stages in decline: How educational organization scales down. Educational Administration Quarterly, 1983, (Under review).**

8. Berger, M. Studying enrollment decline (and other timely issues) via the case survey. Educational Evaluation and Policy Analysis, 1983, (Forthcoming).**

9. Berger, M. Why communities protest school closings. Education and Urban Society, 1983, (Forthcoming).**

10. Boone, C. The effects of succession on organizations in decline. Doctoral Dissertation, Peabody College of Vanderbilt University, Nashville, Tennessee, April, 1982.

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STUDYING ENROLLMENT DECLINE

(AND OTHER TIMELY ISSUES)

VIA THE CASE SURVEY

The subject of this paper is a technique to integrate several isolated case studies. It was created, almost by necessity, as a result of two problems which often plague educational researchers: constraints on data collection and the proliferation of one-shot case studies. Each problem will be discussed briefly.

If educational researchers want to study a controversial issue, the implementation of a new technique, or the impact of a new policy, they are often constrained by a number of factors. In school closings, for example, it is possible that the cost of collecting data over the duration of the decision-making process will be prohibitive. Second, access to the various participants may be problematic. People move away, boards go into executive session, and subjects may refuse to cooperate. Finally, it is often difficult to conceive a quasi-experimental or experimental design. Imagine a researcher who wants to study the effects of a community involvement policy on the closure decision. The researcher could not ask the school board to use a community task force in one part of the district to recommend schools for closure, and prohibit community involvement in another part of the district.

In light of these constraints, researchers often rely on the intensive case study. The method usually includes participant observation, open-ended interviews, and situation-specific documents to describe the events and to form qualitative conclusions about the policy phenomena in question. In the area of enrollment decline, for example, case studies proliferate the landscape (see Colton and French, 1979; Cuban, 1979; Duke

and Meckel, 1980; Rogers and Nord, 1981; Wachtel and Powers, 1979; and Yeager, 1979).

Case studies have several advantages over experiments. First, they offer detailed accounts of a particular phenomenon. Moreover, their longitudinal nature allows the description of events over time. Third, cases offer close-at-hand impressions of the case writer which may be more accurate than impersonal surveys which ask for a rating on a number of quantitative scales. Most important, case studies overcome the cost, access, and design constraints of quantitative research. Thus, for many policy questions, intensive case studies may be ideal, and often become the dominant mode of research.

On the other hand, numerous case studies can be a curse (Wilson, 1979). The various "war stories" are too idiosyncratic. They describe what happened in one situation and generalization to other settings may be limited. While researchers know it is important to review and integrate previous research before they pursue a topic, the presence of diverse case studies makes it difficult to know exactly what the case study literature says. As the number of case studies on a certain topic grows, it becomes increasingly important, however difficult, to integrate their collective meaning.

In his Presidential Address at AERA in 1975, later published in the Educational Researcher, Glass (1976) underscored this very point:

> The literature of dozens of topics in education is growing at an astounding rate. In five years time, researchers can produce literally hundreds of studies on IQ and creativity, or impulsive vs. reflective cognitive styles, or any other topic. (p. 3)
>
> Our problem is to find the knowledge in the information. We need methods for the orderly summarization of studies so that knowledge can be extracted from the myriad of individual researches. (p. 4)

This is not to suggest that synthesis of multiple case studies does not occur. Qualitative syntheses in the area of enrollment decline were done by Rideout (1975), Burlingame (1979), and Boyd (1979). These scholars have taken an important step, and while the number of cases they analyzed was usually small (6-10), their efforts were critical to the integration of diverse case materials.

The purpose of this paper is to describe a more extensive technique for dealing with the twin problems of constraints on data collection and the need to integrate many case studies. The technique is called the case survey and involves the analysis of the content of case studies via a closed-ended questionnaire. This instrument enables the researcher to aggregate the various case experiences and, in turn, to make generalizations about the studies as a whole. After outlining the roots of this approach and its relationship to meta-analysis, the discussion turns to a description of the basic process with an application to the enrollment decline case literature, and discussion of implications for future educational research and development.

ROOTS OF THE CASE SURVEY METHOD

The case survey method attempts to carry many isolated case studies several steps forward by systematic aggregation and analysis. The origins of the approach can be found in content analysis, and more recently, in the efforts of a handful of organization researchers.

The content analysis of published data is not new in social science research. It has been used in history, journalism, anthropology, and sociology for many decades (see Berelson, 1954; Budd et al., 1967; Carney, 1972; North, 1963; and Pool, 1959 for several classic examples). Essentially, it involves the coding, tabulating, and analyzing of existing data.

Coding categories may include (1) the number of occurrences of an event, (2) the presence or absence of a phenomenon, (3) the attitude toward an object, and (4) the intensity of feelings about a role.

Emil Bend's study (1952) is an excellent example of content analysis. He investigated the spouse-wanted columns in a New York Yiddish newspaper called The Day. This paper regularly published a classified spouse-wanted column; interestingly, this form of spouse selection was considered quite acceptable until the early 1950's. A typical ad read, "Parents seek a physician for pretty daughter." Bend compared the ads from 1935 and 1950 to determine if the value preferences stated for spouses varied over time. He hypothesized that socioeconomic characteristics (as opposed to personal characteristics) would be more important in the period immediately following immigration than they would be at a later period. Following a systematic sampling and coding procedure, he searched each advertisement to determine the order in which various spouse characteristics were mentioned. The data showed that socioeconomic factors in spouse selection were indeed higher and personal traits were lower in the early year than in the later year.

During the last seven years, a handful of organization researchers have been working with the method, calling it either the case survey or the structured content analysis of cases. The modern era began with a group of researchers at the Rand Corporation (see Lucas, 1974). Yin and Yates (1975) content analyzed various cases to determine the attitudinal effects of urban decentralization. Gamson (1975) used the technique to study 53 protest organizations. Miller and Friesen (1977) investigated strategic decision-making in Fortune magazine. Yin et al. (1977) studied technological innovations. McDonald and Zellman (1978) evaluated the effects of ESAA funded non-profit corporations. Miller and Friesen (1980) researched 26 companies

for structural and strategy change. Jauch et al. (1980) studied executive succession. Berger (1982) studied the stages of responses to enrollment decline.

The appeal of the case survey method is strong because it transforms qualitative evidence into quantitative statements. Until now, the main limitation of isolated, one-shot case studies was that the insights from the various cases could not be aggregated in any systematic manner. The case survey overcomes this problem by integrating the individual studies via conventional statistics. Moreover, since case studies are in the public domain, data collection constraints (cost, access, and design) are minimized. Finally, the method is based on the assumptions that: (1) the case study is a legitimate sampling unit, (2) there is a meaningful population of cases from which one might generalize, and (3) selected aspects of the cases can be quantified.

THE CASE SURVEY AND META-ANALYSIS

By now, knowledgeable researchers have concluded that the case survey method sounds like secondary analysis, meta-evaluation, or meta-analysis. If it is true that secondary analysis is "the re-analysis of data for the purpose of answering the original research question with better statistical techniques or answering new questions with old data" (Glass, 1976, p. 3), then the case survey is secondary analysis. By the same token, if it is true that meta-evaluation involves Stufflebeam's (1975) notion of the evaluation of formative research and non-empirical evaluations, then the case survey is very similar to meta-evaluation. Finally, if meta-analysis refers to "the analysis of analyses, in other words, the statistical analysis of a large collection of results from individual studies for the purpose of integrating the findings" (Glass, 1976, p. 3), then the

case survey is definitely a form of meta-analysis.

Despite these apparent definitional similarities, the case survey and meta-analysis do differ. To explore the differences, we need to specify more precisely the meaning of meta-analysis. To its most eloquent advocate, meta-analysis is the "statistical analysis of the summary findings of many empirical studies" (Glass, 1981, p. 21). Cook and Leviton (1980) agree. They see meta-analysis as a process where "studies relevant to a conceptual issue are collected, summary statistics from each study (e.g., means or correlations) are treated as the units of analysis, and the aggregate data are then analyzed in quantitative tests of the proposition under examination" (Cook and Leviton, 1980, p. 445).

In both definitions, meta-analysis refers to a collection of experimental or correlational studies on a particular topic, where the quantitative findings of the various studies (differences in means, correlation coefficients and/or frequencies) are used as the dependent variable, and the substantive or methodological characteristics of the various studies are used as the independent variables. A classic example is the Glass and Smith (1976) study on the effects of psychotherapy. They found nearly 400 controlled evaluations on the effects of psychodynamic, client-centered, behavior modification, and rational-emotive psychotherapy. Eschewing the traditional narrative review and voting method of meta-analysis, they converted the various outcomes to a common metric, known as "effect size," and conducted a quantitative analysis on the study's attributes. Their major impression was that the four types of therapy were not significantly different in their average impact.

If we contrast the case survey method with this more precise meaning of meta-analysis, several differences emerge. First, where meta-analysis

focuses on experimental or correlational studies, the case survey uses highly descriptive accounts of a phenomenon. Secondly, where meta-analysis attempts to account for study quality (although Glass, 1981 argues against the conventional wisdom that findings are in part determined by the quality of design), the case survey does not account for traditional threats to internal validity (Campbell and Stanley, 1966).

Finally, where meta-analysis uses the statistical findings and methodological characteristics of the various studies, the case survey analyzes the content of the various cases according to the conceptual categories of the case survey researcher. Thus, the findings of the original case writer may or may not be relevant to the goals of the case survey. For example, it is possible the case survey researcher is interested in community opposition to a school closure policy. While the original case writer may have focused on leadership under conditions of enrollment decline, and mentioned only casually the community's initiation of a lawsuit to prevent a school closure, the case survey researcher would use that particular case because it contained data on the community's reaction.

These differences suggest that the case survey is like meta-analysis only when the meta-analysis concept is used in the most general way. If, however, meta-analysis is used to refer to the quantitative analysis of statistical findings, then the case survey is different. We now turn to a discussion of how the case survey is conducted, using the enrollment decline literature as a running example.

THE CASE SURVEY PROCESS AND APPLICATION

The case survey method requires a case analyst to answer the same set of questions for each case study. The various questions are closed-ended to permit easy quantification. The basis for the questions is derived from

the policy literature and the researcher's own theoretical perspective.

The process can be conceptualized in six basic steps: (1) definition of the unit of analysis; (2) identification of the case search strategy and case sources; (3) actual case search and selection; (4) checklist development; (5) checklist application to the cases; and (6) data analysis and interpretation. This process is no different than the process of primary research (Jackson, 1978). Since the goals of both the case survey and primary research are the same, namely, to make generalizations about phenomena from diverse bits of information, it follows that these processes should be similar.

Step 1: Definition of the Unit of Analysis

The unit of analysis in a case survey is a site-specific description of the events which surround a phenomenon. Careful definition of the unit of analysis is essential because it delineates the consistent set of decision rules whereby a certain type of case is included in the study and others are ruled out. Cases can vary in terms of when the case was written, what organizational events were described, what types or settings were studied, what constituted the level of analysis, and whether or not the case was published.

Beginning in the mid-1970's, enrollment decline case studies appeared in the educational research literature. These highly descriptive cases were written by superintendents, education professors, consultants, and government officials. They focused primarily on what happened in a particular district as the board of education, the community, and administration coped with the problems of enrollment decline. The nature of this literature was as follows: (1) the cases were virtually the only empirical information available on the topic; (2) with very few exceptions, integration of the various cases was non-existent; and (3) where synthesis did occur,

it was usually based on a small number of cases. Thus, an application of the case survey method to this literature seemed to be the natural next step to advance the state of knowledge about responses to enrollment decline.

The study's unit of analysis was an enrollment decline experience in a case defined as "any report or reports, written between 1971 and 1980, which described the organizational responses to enrollment decline in a public elementary/secondary school district." This definition ruled "in" multiple case descriptions on a single district and fugitive documents, such as task force studies or consultant reports. It ruled "out" cases writtten after 1980, private school decline experiences, responses to enrollment decline in higher education, and non-district level responses (e.g., how one school within a district weathered a closing decision). Published and unpublished cases were considered acceptable.

Step 2: Identification of Case Search Strategy and Case Sources

One of the most critical tasks of the method is the discovery of case studies. These units constitute the data base for the checklist items. Like the sampling process in primary research, here is where bias can enter the study. It enters through the inclusion of cases which may be unrepresentative of the literature as a whole. Glass et al. (1981) argue that the best protection against this source of bias is a thorough description of the procedures used to locate studies so the reader can make an accurate assessment of the representativeness and completeness of the data base used in the integration. The sources of case studies, in turn, determine the search strategy.

To locate cases for the enrollment decline study, ten sources were identified: journals, dissertations, goverment agencies, bibliographies

(e.g., ERIC), papers from scholarly meetings, abstracts, professional associations, education commissioners in the various states, AASA state presidents, and private research organizations (e.g., Institute for Responsive Education). These sources were searched systematically by the research team for case studies which fit the unit of analysis definition. In all, we reviewed 94 journals and contacted 140 agencies, associations, and professionals by letter and/or telephone. The search included not only case studies but theoretical papers as well. These papers and their bibiliographies were used for possible leads to other case studies.

Step 3: Actual Case Search and Selection

Once the source of cases and search strategy have been determined, the actual process of search and selection can begin. Case search implies the reading of various case materials in light of the study's decision rules and applying the selection criteria. Based on the accumulation of cases and the explicit criteria which define the unit of analysis, the final set of cases is determined. This final set of cases becomes the study's population or, if a subset of this population is selected, the study's sample.

About 250 enrollment decline documents were read. A total of 208 cases met the original criteria for selection. However, we noticed that some cases reported on the same district. We also noted that case studies varied from one or two pages of description to elaborate discussions of fifty pages or more. Faced with the issues of district duplication and case variation, we developed more precise selection criteria.

— To deal with the duplication issue, we decided to treat all documents on a particular district as one and only one case. Some districts (e.g., Skokie, Illinois and Salt Lake City, Utah) have been described by several authors. This information was pooled for each district, thereby enriching the data base and providing a crude qualitative check on case validity.

To cope with the case variation issue, which implied missing data problems, the principal investigator read the 208 cases and distinguished those cases which had very little descriptive data from those cases which had good or excellent data (based on a quality assessment scale of 0 to 3). The documents receiving a "0" or "1" score were typically theoretical papers, prescriptive forecasting papers, aggregated state data or multi-district surveys. Case studies receiving a score of "2" or "3" were descriptions which had substantial data on the study's major variables. This latter set of 70 cases comprised 33.7% of the original cases discovered (see Table I).

Table I about here

It is impossible to know whether the 208 total cases discovered comprise the entire enrollment decline case literature. Multiple references to cases on file and our comprehensive search process led us to believe we were highly inclusive. It is important to note that the sampling procedure was judgmental (or "convenient" as Jackson, 1978, states) rather than random. That is, we selected 70 cases on the presence of predetermined variables, rather than chance. Since it is unclear what portion of the literature was collected, and since the sampling procedure involved judgment, the hypothesis of no bias cannot be ruled out.

Step 4: Checklist Development

The development of the checklist (i.e., the instrument used by the case analysts to survey each case) is usually begun concurrently with earlier steps, depending on the energy and resources of the researcher. Checklist development is similar to the construction of any instrument: variables of interest are identified and scaled in a closed-ended fashion

to permit quantitative analysis. To the extent that variables can be grouped in logical categories and scaled in realistic values, the subsequent application of the checklist to the individual cases is facilitated.

The process of checklist development in the enrollment decline study occurred in tandem with the case search activities. After consultation with several enrollment decline experts and a review of the theoretical literature, the research team generated about 300 variables and their operational definitions. These variables were reduced to 227 and placed in the checklist under the following conceptual categories: (1) nature of the district study; (2) community dempographics; (3) district characteristics; (4) nature of the enrollment decline response; (5) school board role; (6) administration role; (7) professional staff role; and (8) community role. When the checklist was completed, it was ready for application to the final set of 70 cases.

Step 5: Checklist Application to the Final Set of Cases

Checklist application requires two preliminary steps. First, case analysts need training on the content of the checklist and secondly, they must practice the process by which the checklist is applied. Training is critical because multiple meanings and ambiguities are inevitable. This is especially true with items that call for case analyst judgment rather than the recording of numerical data.

Clarity and consistent interpretation of the various items are the goals of checklist training. In terms of the process of application, case analysts will vary in their style. Some analysts like to read an entire case several times and fill out the checklist at the end, whereas other analysts prefer to fill out the various questions as they read. Whatever

the preference, case analysts should practice on several cases before actual coding begins. Once the case analysts are familiar with the checklist and comfortable with the process of application, the actual checklist application process can begin. It continues until one checklist is completed for each district.

During several sessions, the enrollment decline case analysts were instructed in the nature and uses of the checklist. The various items were explained and analysts were given an opportunity to clarify their understanding and to practice checklist application. Since the case analysts were graduate students knowledgeable about enrollment delcine, training and practice were rather straightforward. When training was completed the 70 cases were distributed randomly among the analysts. The 70 checklists became the study's data base.

Step 6: Data Analysis and Interpretation

With the checklists completed, the researcher is now ready for data analysis and interpretation. Analysis is facilitated through the use of multivariate statistics. The main goal of the case survey is to transform isolated, qualitative judgments from disparate cases into quantitative statements about the case literature as a whole. It seems neither possible nor feasible to make such statements without the help of statistical methods (Glass et al., 1981). Typical statistical tests include univariate description, frequency analysis, correlation, regression analysis, factor analysis, analysis of covariance, and/or discriminant analysis.

While the case survey provides quantitative integration and increases the generalizability of isolated case studies, it is not without its methodological problems. Specifically three problems seem to be inherent in the method: establishing case validity and inter-analyst reliability,

evaluating case quality, and overcoming missing data problems.

The question of validity refers to the relationship between each checklist item and the concept it attempts to measure, and the case study and the reality it attempts to describe. On both counts, the case survey is particularly vulnerable. In terms of the former problem, items on the checklist rarely exceed face validity. In terms of the latter problem, the case survey fares no better. Jauch et al. (1980), for example, dismiss the issue entirely by stating that it awaits further investigations. The Miller and Friesen (1980) study is one notable exception. They surveyed 26 published corporate histories and attempted to correlate their checklists with responses on a separate questionnaire sent to twelve firms whose executives were knowledgeable about the events described in the cases.

Reliability is a concern in the case survey because the checklist quantifies, classifies, and codes the characteristics and descriptive accounts of various case studies. Jackson (1978) points out that when the number of studies and items is relatively small, coding can be done by a single investigator, and hence, remains fairly consistent. But if many cases are coded, and they are coded over time, serious threats to coding stability may occur. In more precise terms, measurement unreliability is likely to occur when different case analysts fail to see or fail to judge case events in the same way. The problem is usually resolved by having more than one analyst fill out a checklist on the same case. The amount of inter-analyst agreement becomes the measure of reliability (Yin and Heald, 1975).

Variation in case quality is also a problem in case survey research. This usually comes from the meta-analysis notion that the findings of poorly designed studies are often combined with the findings of "good"

studies, while aggregated conclusions should only be based on the findings of "good" studies (Cook and Gruder, 1978). Concern about quality may also occur if there is "selection-bias" in the original collection of cases (e.g., cases chosen from only academically-oriented journals).

In the enrollment decline study, validity of the various checklist items was not checked empirically. Experts did assert that the various items had face validity, but no further quantitative analysis was conducted. Reliability, on the other hand, was verified empirically. Reliability was defined as the degree of consistency between two checklists on the same district, each completed by a different case analyst. This is similar to reliability on a psychological or educational instrument when the researcher is interested in the stability of a person's score under slightly different conditions.

To estimate reliability, researchers typically use a test-retest, equivalent forms, or split-half technique. A test-retest estimate is obtained by administering a test to a group of individuals, re-administering the same test to the same group at a later date and correlating the two sets of scores. In contrast, the equivalent forms estimate is obtained by giving two forms of a test to the same group on the same day and correlating these sets of scores. The split-half method is basically a variation of equivalent forms; instead of administering an alternate form, only one test is administered and an estimate of reliability is obtained by taking two halves of the test and correlating them. To estimate reliability for the entire test, a correction factor is applied using the Spearman-Brown prophesy formula (see Mehrens and Lehmann, 1973, p. 114):

$$r_{xx} = \frac{2r_{\frac{1}{2}\frac{1}{2}}}{1 + r_{\frac{1}{2}\frac{1}{2}}}$$

where r_{xx} = estimated reliability for the entire test

$r_{\frac{1}{2}\frac{1}{2}}$ = correlation coefficient for the half-test.

The present study used a variation of the split-half technique. The advantage of this procedure was that it required only one form of the checklist. A random sample of 36 of the 70 cases (51.4%) was chosen. Two analysts read each case independently and completed a checklist (see Yin et al., 1977; Miller and Friesen, 1980; and Jauch et al., 1980 for a similar procedure). After selecting a random sample of 50 checklist items for the reliability estimate, a Pearson's product moment correlation coefficient was calculated for the two raters across the 36 cases. The correlation was .64. To estimate reliability for the entire checklist, the Spearman-Brown prophecy formula was applied as follows:

$$r_{xx} = \frac{2(.64)}{1 + .64} = \frac{1.28}{1.64} = .78$$

Thus, with an inter-analyst correlation coefficient of .64, the estimated reliability for the entire checklist was .78. Jauch et al. (1980) suggest that a Spearman-Brown reliability coefficient of at least .67 is adequate for questionnaires, and hence, case survey research.

The issue of quality refers to the possibility that the final set of 70 cases was biased in some way. Bias may be present as a result of the sampling procedures. The cases in this study were selected if they contained the study's variables of interest. Thus, there is no way to estimate whether the final set of 70 cases was representative of the entire case literature or of school districts as a whole.

The missing data problem is also implied in the issue of quality. Despite attempts to select cases which contained most of the variables, the large number of variables on the checklist, and the disparate cases meant that this study suffered from missing data problems. At this point the researcher is faced with a decision: delete cases from the analysis which lack data, or pursue missing data in order to retain a high number of cases.

For this study, we developed an elaborate follow-up process. Reasoning that missing data could be collected through a little detective work, we conceived a strategy that would supply missing data by contacting the original case writer, local newspaper education reporters, or the district itself. This collection process was suggested in Yin et al. (1979). When information could not be located, the checklist item was marked "Impossible to say" and deleted from the computer analysis.

Table II about here

The final set of 70 cases was composed of the following community types: 24 urban, 35 suburban, and 11 rural (see Table II). Two particular questions from the original study will illustrate data analysis and interpretation.

1. Do school districts experiencing enrollment decline delay the timing of their first school closing?

Despite the fact that numerous authors have written on the volatile subject of school closings, there has been very little work on when the consolidation of schools is likely to occur. One can hypothesize that closings are sufficiently controversial that districts will put them off as long as possible. A checklist item was included to identify the year a district closed its first school and a Chi-square statistic tested the assertion that the observed distribution of first closures did not differ over time ($p < .05$). To standardize the cases, the analyst determined the year of peak enrollment(PE) in the district. Data were then collected in two year intervals, up to PE + 10. The frequencies appear in Table III.

Table III about here

The data in Table III show 59 valid cases. The expected frequency of first closures per year was 11.8 (.20 x 59). The calculated Chi-square statistic was 1.23, with a critical value of 9.48 (.05 level and 4 degrees of freedom). Thus, the null hypothesis of no differences between observed and expected frequencies could not be rejected. School districts in this study were equally likely to close their first schools early as well as late in their decline cycle. The assertion that school districts will delay the timing of their first closing is not supported in this context.

2. What is the impact of enrollment decline and certain structural characteristics of a district on per pupil costs?

It is well within the conventional wisdom that enrollment decline creates financial stress for the district. Cuban (1979) used the two-armed pincers metaphor to describe the problem. On arm is demographic changes (i.e., enrollment decline) and the other arm is rising costs. Combine inflation with less revenue coming in (as a result of declining enrollment) and the pincers squeeze the district. While it is assumed that enrollment decline has a critical impact on per pupil costs, the exact nature of this effect, as well as the impact of various structural factors on per pupil costs, have rarely been estimated.

Six variables were used to shed some light on these issues (see Table IV). The dependent variable, per pupil costs in PE + 10, typically included teacher, staff, and administration salaries, supplies, maintenance, transportation, fixed charges (Social Security), and debt service. This cost figure was adjusted for inflation, using the consumer price index for that district. The enrollment decline rate was measured from PE to PE + 8. The school consolidation rate looked at the number of buildings alone and, hence,

is the number of schools in the district in PE, minus the number of schools in PE + 8, divided by the number of schools in PE. The pupil-teacher ratio is the number of pupils divided by the number of teachers. The average school utilization rate is the number of students per school in PE, minus the number of students per school in PE + 8, divided by the number of students per school in PE. Finally, the pupil-administrator ratio is the number of students divided by the number of administrators (including principals).

Table IV about here

Table V about here

Table V indicates that for the combined sample, the five predictor variables explain almost 30% of the variance in per pupil costs. Of the five predictors, however, only decline rate ($p < .01$) and pupil-teacher ratio ($p < .001$) were significant. Moreover, the signs on both beta weights are negative (-.36 and -.45, respectively). While it is expected that the relationship between the pupil-teacher ratio and per pupil costs would be negative (that is, the higher the pupil-teacher ratio the lower the per pupil costs, as a result of economies of scale), it is curious that decline rate has a negative rather than a positive effect on per pupil costs. The finding is that the higher the decline rate, the lower the per pupil costs, holding other factors constant. This contradicts the conventional view that the higher the decline rate, the higher the per pupil costs.

The anomaly may be explained by remembering that declining enrollment increases costs if, and only if, it fails to precipitate cutbacks in facilities, programs, and staff. Whether such cutbacks occur probably depends

on the level of fiscal stress in a district brought on by enrollment decline. The level of fiscal stress, in turn, depends on state funding formulas and changes in district wealth or taxing policies. Thus, lower per pupil costs could be associated with higher ratios of decline if a district cuts its expenditures faster than enrollment falls. For example, since the rate of teacher cutback was not measured in this analysis, this factor could be moderating the decline rate/per pupil cost relationship.

ANALYSIS OF THE CASE SURVEY METHOD

The case survey approach involves placing the data from descriptive case studies into a closed-ended checklist and analyzing the checklists from many cases via conventional statistical techniques to determine the relationships between the variables of interest to the researcher. Clearly, the case survey method has a number of strengths. First, it is a systematic, explicit method of integrating a diverse set of case materials. Second, because it focuses on the utilization of existing knowledge, it may be less costly for some policy issues than the production of primary research. Third, because case materials are in the public domain, the method avoids certain access and data collection problems. Fourth, through the use of multivariate statistics, the method permits the investigation of relationships between variables when the nature of the problem or location of the data preclude an experimental or quasi-experimental design. Finally, the case survey permits a more generalizable conclusion than the single case study.

This is not to say that the method is without problems. In addition to the three troublesome issues discussed earlier, Jackson (1978) has argued that when multivariate statistics are used, the set of original

studies must be large because the standard errors of both the R^2 and partial regression coefficients are the inverse function of N-K-1, where N is the number of cases and K is the number of predictor variables (Kerlinger and Pedhazur, 1963, p. 62-67). When the N is small, the standard errors of the partials will be large and will overestimate the population parameter. Kerlinger and Pedhazur (1973, p. 282) suggest at least 30 cases for each predictor. Finally, while it may be true that the case survey permits generalization beyond any one particular case study, generalization should be made to the case study literature, rather than to all districts.

IMPLICATIONS

What are the implications of the case survey method for future educational research and development? The first and obvious implication is to apply the method to other case literatures. While meta-analysis has focused on studies with quantified findings, the case survey can be used in those policy areas where one-shot, idosyncratic case studies need integration. Such literatures include educational administration, educational policy, and program evaluation.

The second implication is to refine the method itself. Like any new technique, the case survey has many unresolved problems which may threaten its ultimate utility. Work is needed to improve the establishment of validity, to distinguish quality cases, to overcome missing data problems, and to refine checklist development and application procedures. Without further work on the case survey, its positive features may be overlooked and a promising integrative strategy set aside.

A final implication has to do with the training and development of future educational researchers. Researchers tend to distinguish themselves as qualitative case study types, on the one hand, and quantitative experimentalists, on the other hand. Typically, the distinction is more a func-

tion of the researcher's level of comfort with statistics than anything else. Those researchers who shy away from the "crunching of numbers" tend to prefer qualitative studies, while those trained in "harder" methods prefer the experimental approach. The bifurcation is indeed unfortunate. It undermines the legitimacy of the "other" method and leads to a search for problems and research techniques which are suited to the researcher's technical competence. Until now, there were few occasions to integrate the skills and strengths of both research perspectives.

With the development of the case survey, the training and development of future researchers can incorporate a set of skills (and a perspective) that broadens rather than narrows research competence. The case survey forces the researcher to come to grips with the importance of a good, qualitative analysis, and at the same time to become skilled in the assumptions and techniques of survey and multivariate techniques. Ideally, the researcher would be trained from the starting point of case development to the endpoint of the analysis of many cases.

CONCLUSION

The purpose of this paper was to describe the case survey method for overcoming data collection constraints and difficulties with many unintegrated case studies. More specifically, the aim was to outline the roots of the case survey, to distinguish it from meta-analysis, to describe the basic process and apply it to the enrollment decline case literature, to evaluate its strengths and limitations, and to suggest some implications for future research and development.

The case survey should be viewed as one method for improving the quality and generalizability of one-shot case studies. It is not the

only answer to the problems of conducting research. Rather, it is a tool and as such, it has appropriate and inappropriate uses. Whether it will be useful, however, depends on more development and application.

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TABLE I

Assessment of Cases for Final Set

Rating	Number of Cases	Percentage
0 or 1	138	66.3
2 or 3	70	33.7
	208	100.0%

TABLE II

Community Distribution of the Final Set of Cases

Urban Districts (n = 25)	Suburban Districts (n = 34)	Rural Districts (n = 11)
California: Haywood, Palo Alto, Santa Barbara	California: Berkeley	Illinois: Champaign, Pawnee-Divernon
Colorado: Englewood	Illinois: Alton,[a] Camden.[a] Deerfield, Elmhurst, Glencoe, La Grange, Leland,[a] Mt. Prospect, Northview,[a] Oakton,[a] Oregon, Shabbona, Skokie, Trenton,[a] Weston[a]	Indiana: Monroe County
Connecticut: Hamden	Maryland: Montgomery County	Iowa: Cal Community District, Lohrville
Illinois: North Chicago, Pekin	Massachusetts: Lexington, Natick, Newton,	Ohio: Bradford, Fairborn, Franklin
Massachusetts: Boston	Michigan: Birminghan, Livonia, Oakpart	Oklahoma: Blackwell
Michigan: Grand Rapids	Minnesota: #1[a]	Minnesota: #3, #4[a]
Minnesota: #2, #5 [a]	New Jersey: Bridgeton	
Missouri: Kansas City, St. Louis	New York: Arbutus,[a] Clarence, East Meadow, Great Neck, Karlin, [a] Mamaroneck, White Plains	
New York: East Syracuse, Yonkers	Pennsylvania: South Allegheny	
Ohio: Berea, Euclid, Lakewood, Steubenville,	Virginia: Arlington	
Oklahoma: Tulsa		
Oregon: Eugene		
Tennessee: Nashville		
Utah: Salt Lake City		
Virginia: Richmond		
Washington, Seattle		

Note: The terms suburban and rural were at times applied based on proximity to urban centers rather than population. For example, some districts (e.g., Skokie, Illinois and Montgomery County, Maryland) are large in size but are adjacent to urban centers. They were categorized as suburban. Other districts (e.g., Grand Rapids, Michigan and Steubenville, Ohio) are smaller in size but are relatively industrialized and independent of any larger, nearby city and are categorized as urban.

[a] District names are pseudonyms used by the original case authors.

TABLE III

Frequency Analysis of the Year of First School Closing (N = 70)

Year after Peak Enrollment (PE)	Observed Number of Districts Closing Schools for First Time	Relative Frequency (%)	Adjusted Relative Frequency (N=59) (%)
PE + 2	15	21.4	25.4
PE + 4	11	15.7	18.6
PE + 6	12	17.2	20.4
PE + 8	10	14.3	17.0
PE + 10	11	15.7	18.6
Impossible to say	11	15.7	Missing
TOTAL	70	100.0	100.0

TABLE IV

Descriptive Statistics and Correlations for the

Per Pupil Cost Study

Variable	Mean	S.D.	N	1.	2.	3.	4.	5.
1. Decline rate (from PE to PE+8)	.23	.08	57					
2. Consolidation rate	.12	.18	51	.02				
3. Pupil-teacher ratio	20.2[a]	4.61	50	-.11	.23			
4. School utilization rate	.85	.15	51	-.30*	.50**	.09		
5. Pupil-administration ratio	356[b]	450	43	.07	.25	-.09	.24	
6. Per-pupil costs	$2,017.6	$606.40	41	-.31*	.10	-.34*	.15	-.08

Note: Cases for correlation vary from 41-57.

[a]Number of pupils per teacher

[b]Number of pupils per administrator

*Significant at .05 level (two-tailed test).

**Significant at .01 level (two-tailed test).

TABLE V

Regression of Per Pupil Cost on Antecedent Variables

Independent Variable	Beta	Standard Error	Partial F-ratio
1. Decline rate	-.36	1.29	4.26*
2. Consolidation rate	.25	.64	1.66
3. Pupil-teacher ratio	-.45	.02	7.13**
4. School utilization rate	-.02	.78	0.01
5. Pupil-administration ratio	-.13	.23	0.56
		R^2 = .298; df = 5,28	
		F = 2.29, N.S.	

* $p < .01$

** $p < .001$